

CLAIMS

1. An interchangeable sensor head component employable in a monitoring tool assembly, comprising:

an electronic connector portion configured to establish an electrical connection to
5 a monitoring tool assembly;

at least one electronic component in connection with the electronic connector which is configured to perform at least one function; and

a memory device accessible through the electronic connector which is configured to store and provide access to operational information for the interchangeable sensor head
10 component.

2. The interchangeable sensor head component of claim 1 further configured as at least one of: an interchangeable sensor configured to monitor at least one parameter and an accessory.

3. The interchangeable sensor head component of claim 2 wherein the
15 operational information includes at least one of: identification information for the interchangeable sensor head component.

4. The interchangeable sensor head component of claim 3 wherein the operational information further includes at least one of: manufacture date, operating range, serial number, hardware revision, actual sensor serial number, actual sensor model
20 number, and production technician ID code.

5. The interchangeable sensor head component of claim 4 wherein the operational information for the interchangeable sensor may further include at least one of: calibration data and calibration date.

6. The interchangeable sensor head component of claim 2 wherein the
25 interchangeable sensor is further configurable as at least one of: an active sensor and a passive sensor.

7. The interchangeable sensor head component of claim 6 wherein the predetermined parameter comprises at least one of: conductivity, dissolved oxygen, pressure and/or turbidity, oxidation reduction potential (ORP), chloride, nitrate,
30 chlorophyll, ammonium, and temperature.

8. The interchangeable sensor head component of claim 2 wherein the accessory comprises at least one of: a wiper device, a stirring device, and a shutter device.

5 9. The interchangeable sensor head component of claim 1 wherein the electrical connector portion further comprises a plug-in connector portion for providing electrical interconnection between the enclosed electrical apparatus and a mating plug-in connector positionable within a port.

10 10. The interchangeable sensor head component of claim 9 wherein the electrical connector provides at least one of: a two wire connection, a four wire connection, and a six wire connection.

11. The interchangeable sensor head component of claim 1 wherein the memory comprises an EEPROM.

15 12. The interchangeable sensor head component of claim 1 wherein the interchangeable sensor is further configured to monitor a plurality of the parameters.

13. An interchangeable sensor head component for use with a monitoring tool, comprising:

an elongated housing portion configured to include an electrical component; and
a base portion connectable to the elongated housing portion, where the base
5 portion is configured to engage and disengage within a port through application of a
linear force.

14. The interchangeable sensor head component of claim 13 wherein at least
one radially compressive sealing device is disposed around the base portion, wherein the
at least one radially compressive sealing device is positionable on the base portion so as
10 to expand within a specially configured cavity upon insertion of the base portion in the
port, and generate a force which resists removal of the base portion from the port.

15. The interchangeable sensor head component of claim 13 wherein one or
more one additional radially compressive sealing devices are disposed around the base
portion for providing an environmental seal upon insertion of the base portion in the port.

16. The interchangeable sensor head component of claim 13 wherein the base
15 portion further includes a plug-in connector portion for providing electrical
interconnection between the included electrical component and a mating connector
positionable within the port.

17. The interchangeable sensor head component of claim 16 wherein the base
20 portion is further configured to provide at least one of: a two wire connection, a four wire
connection, and a six wire connection.

18. The interchangeable sensor head component of claim 13 wherein the
electronic element is configurable as a sensing device for monitoring at least one
parameter.

19. The interchangeable sensor head component of claim 13 wherein the
25 elongated housing and the included electronic component comprise an accessory.

20. The sensor of claim 18 further configured to monitor conductivity,
wherein the elongated housing portion is configured to include first and second
substantially parallel surfaces with a plurality of electrodes disposed on each of the first
30 and second surfaces, the first and second surface are further oriented at an angle other
than perpendicular to a longitudinal axis for the elongated housing.